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Sequence Listing was accepted.

See attached Validation Report.

If you need help call the Patent Electronic Business Center at (866)  
217-9197 (toll free).

Reviewer: Durreshwar Anjum

Timestamp: [year=2010; month=4; day=14; hr=14; min=23; sec=10; ms=231; ]

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Application No: 10581014 Version No: 1.0

**Input Set:****Output Set:**

**Started:** 2010-04-05 18:02:15.979  
**Finished:** 2010-04-05 18:02:39.014  
**Elapsed:** 0 hr(s) 0 min(s) 23 sec(s) 35 ms  
**Total Warnings:** 629  
**Total Errors:** 34  
**No. of SeqIDs Defined:** 711  
**Actual SeqID Count:** 711

Error code	Error Description
W 213	Artificial or Unknown found in <213> in SEQ ID (5)
W 213	Artificial or Unknown found in <213> in SEQ ID (6)
E 355	Empty lines found between the amino acid numbering and the
E 321	No. of Bases conflict, this line has no nucleotides SEQID (9)
W 213	Artificial or Unknown found in <213> in SEQ ID (10)
W 213	Artificial or Unknown found in <213> in SEQ ID (11)
W 213	Artificial or Unknown found in <213> in SEQ ID (12)
W 213	Artificial or Unknown found in <213> in SEQ ID (13)
W 402	Undefined organism found in <213> in SEQ ID (15)
E 355	Empty lines found between the amino acid numbering and the
E 321	No. of Bases conflict, this line has no nucleotides SEQID (15)
W 402	Undefined organism found in <213> in SEQ ID (20)
W 213	Artificial or Unknown found in <213> in SEQ ID (21)
W 213	Artificial or Unknown found in <213> in SEQ ID (22)
W 213	Artificial or Unknown found in <213> in SEQ ID (23)
W 213	Artificial or Unknown found in <213> in SEQ ID (24)
W 213	Artificial or Unknown found in <213> in SEQ ID (25)
W 213	Artificial or Unknown found in <213> in SEQ ID (26)
W 213	Artificial or Unknown found in <213> in SEQ ID (27)
W 213	Artificial or Unknown found in <213> in SEQ ID (28)

**Input Set:**

**Output Set:**

**Started:** 2010-04-05 18:02:15.979  
**Finished:** 2010-04-05 18:02:39.014  
**Elapsed:** 0 hr(s) 0 min(s) 23 sec(s) 35 ms  
**Total Warnings:** 629  
**Total Errors:** 34  
**No. of SeqIDs Defined:** 711  
**Actual SeqID Count:** 711

Error code	Error Description
W 213	Artificial or Unknown found in <213> in SEQ ID (29)
W 213	Artificial or Unknown found in <213> in SEQ ID (30)
W 213	Artificial or Unknown found in <213> in SEQ ID (31)
W 213	Artificial or Unknown found in <213> in SEQ ID (32)
W 213	Artificial or Unknown found in <213> in SEQ ID (33)
W 213	Artificial or Unknown found in <213> in SEQ ID (34) This error has occurred more than 20 times, will not be displayed
W 402	Undefined organism found in <213> in SEQ ID (96)
W 402	Undefined organism found in <213> in SEQ ID (97)
E 355	Empty lines found between the amino acid numbering and the
E 321	No. of Bases conflict, this line has no nucleotides SEQID (99)
E 355	Empty lines found between the amino acid numbering and the
E 321	No. of Bases conflict, this line has no nucleotides SEQID (103)
W 402	Undefined organism found in <213> in SEQ ID (112)
W 402	Undefined organism found in <213> in SEQ ID (113)
W 402	Undefined organism found in <213> in SEQ ID (118)
W 402	Undefined organism found in <213> in SEQ ID (119)
W 402	Undefined organism found in <213> in SEQ ID (132)
E 355	Empty lines found between the amino acid numbering and the
E 321	No. of Bases conflict, this line has no nucleotides SEQID (646)
W 402	Undefined organism found in <213> in SEQ ID (648)
W 402	Undefined organism found in <213> in SEQ ID (653)
W 402	Undefined organism found in <213> in SEQ ID (654)

**Input Set:**

**Output Set:**

**Started:** 2010-04-05 18:02:15.979  
**Finished:** 2010-04-05 18:02:39.014  
**Elapsed:** 0 hr(s) 0 min(s) 23 sec(s) 35 ms  
**Total Warnings:** 629  
**Total Errors:** 34  
**No. of SeqIDs Defined:** 711  
**Actual SeqID Count:** 711

Error code	Error Description
E 355	Empty lines found between the amino acid numbering and the
E 321	No. of Bases conflict, this line has no nucleotides SEQID (654)
W 402	Undefined organism found in <213> in SEQ ID (656)
W 402	Undefined organism found in <213> in SEQ ID (663)
W 402	Undefined organism found in <213> in SEQ ID (666)
W 402	Undefined organism found in <213> in SEQ ID (671)
E 355	Empty lines found between the amino acid numbering and the
E 321	No. of Bases conflict, this line has no nucleotides SEQID (671)
W 402	Undefined organism found in <213> in SEQ ID (677)
W 402	Undefined organism found in <213> in SEQ ID (683)
W 402	Undefined organism found in <213> in SEQ ID (684)
E 355	Empty lines found between the amino acid numbering and the
E 321	No. of Bases conflict, this line has no nucleotides SEQID (684)
W 402	Undefined organism found in <213> in SEQ ID (688) This error has occurred more than 20 times, will not be displayed
E 341	'Xaa' position not defined SEQID (701) POS (168)
E 341	'Xaa' position not defined SEQID (701) POS (169)
E 341	'Xaa' position not defined SEQID (701) POS (170)
E 341	'Xaa' position not defined SEQID (701) POS (171)
E 341	'Xaa' position not defined SEQID (701) POS (172)
E 341	'Xaa' position not defined SEQID (701) POS (173)
E 341	'Xaa' position not defined SEQID (701) POS (174)
E 341	'Xaa' position not defined SEQID (701) POS (175)

**Input Set:**

**Output Set:**

**Started:** 2010-04-05 18:02:15.979

**Finished:** 2010-04-05 18:02:39.014

**Elapsed:** 0 hr(s) 0 min(s) 23 sec(s) 35 ms

**Total Warnings:** 629

**Total Errors:** 34

**No. of SeqIDs Defined:** 711

**Actual SeqID Count:** 711

Error code	Error Description
E 341	'Xaa' position not defined SEQID (701) POS (176)
E 341	'Xaa' position not defined SEQID (701) POS (177)
E 341	'Xaa' position not defined SEQID (701) POS (178)
E 341	'Xaa' position not defined SEQID (701) POS (179)
E 341	'Xaa' position not defined SEQID (701) POS (180)
E 341	'Xaa' position not defined SEQID (701) POS (181)
E 341	'Xaa' position not defined SEQID (701) POS (182)
E 341	'Xaa' position not defined SEQID (701) POS (183)
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E 341	'Xaa' position not defined SEQID (701) POS (185)

# SEQUENCE LISTING

<110> Genencor International, Inc.  
 The Procter & Gamble Company  
 Amin, N.S.  
 Boston, M.G.  
 Bott, R.R.  
 Cervin, M.A.  
 Concar, E.M.  
 Gustwiller, M.E.  
 Jones, B.E.  
 Liebeton, K.  
 Miracle, G.S.  
 Oh, H.  
 Poulouse, A.J.  
 Ramer, S.W.  
 Scheibel, J.J.  
 Weyler, W.  
 Whited, G.M.

<120> Perhydrolase

<130> GC821-2-PCT

<140> 10581014

<141> 2010-04-05

<150> PCT/US04/40438

<151> 2004-12-03

<150> US 60/526,764

<151> 2003-12-03

<160> 711

<170> PatentIn version 3.2

<210> 1

<211> 651

<212> DNA

<213> Mycobacterium smegmatis

<400> 1

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cagctcggag cggacttcga ggtgatcgag gagggactga gcgcgcgcac caccaacatc 180

gacgacccca ccgatccgcg gctcaacggc gcgagetacc tgccgtcgtg cctcgcgacg 240

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cggcgacacc cgctcgacat cgcgctgggc atgtcgggtgc tcgtcacgca ggtgctcacc 360

agcgcgggcg gcgtcggcac cacgtaccg gcacccaagg tgctggtggt ctgcccgcga 420

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gacgcggggtt cggatgatcag caccgacggc gtcgacggaa tccacttcac cgaggccaac 600  
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<211> 216  
<212> PRT  
<213> Mycobacterium smegmatis

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Ile	Glu	Glu	Gly	Leu	Ser	Ala	Arg	Thr	Thr	Asn	Ile	Asp	Asp	Pro	Thr	50	55	60	
Asp	Pro	Arg	Leu	Asn	Gly	Ala	Ser	Tyr	Leu	Pro	Ser	Cys	Leu	Ala	Thr	65	70	75	80
His	Leu	Pro	Leu	Asp	Leu	Val	Ile	Ile	Met	Leu	Gly	Thr	Asn	Asp	Thr	85	90	95	
Lys	Ala	Tyr	Phe	Arg	Arg	Thr	Pro	Leu	Asp	Ile	Ala	Leu	Gly	Met	Ser	100	105	110	
Val	Leu	Val	Thr	Gln	Val	Leu	Thr	Ser	Ala	Gly	Gly	Val	Gly	Thr	Thr	115	120	125	
Tyr	Pro	Ala	Pro	Lys	Val	Leu	Val	Val	Ser	Pro	Pro	Pro	Leu	Ala	Pro	130	135	140	
Met	Pro	His	Pro	Trp	Phe	Gln	Leu	Ile	Phe	Glu	Gly	Gly	Glu	Gln	Lys	145	150	155	160
Thr	Thr	Glu	Leu	Ala	Arg	Val	Tyr	Ser	Ala	Leu	Ala	Ser	Phe	Met	Lys	165	170	175	
Val	Pro	Phe	Phe	Asp	Ala	Gly	Ser	Val	Ile	Ser	Thr	Asp	Gly	Val	Asp	180	185	190	
Gly	Ile	His	Phe	Thr	Glu	Ala	Asn	Asn	Arg	Asp	Leu	Gly	Val	Ala	Leu	195	200	205	
Ala	Glu	Gln	Val	Arg	Ser	Leu	Leu									210	215		

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<213> Mycobacterium parafortuitum

<400> 3

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<210> 4  
<211> 19  
<212> PRT  
<213> Mycobacterium parafortuitum

<400> 4

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<213> Artificial Sequence

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<212> DNA  
<213> Artificial Sequence

<220>  
<223> primer

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<212> DNA  
<213> Mycobacterium smegmatis

<400> 7  
ggctgggggc 10

<210> 8



<211> 1779

<212> DNA

<213> *Mycobacterium smegmatis*

<400> 8

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accgtcggtg	tcatcactgt	cgaacgcgca	catccggagt	cggccgcacc	gctcgccgcc	540
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gcgatcgcg	tttcgggcct	gtaccgcgcg	gggtcgacgt	tcaagaccat	caccacggcg	1080
gcagccctcg	acgcgggcct	ggccaccccg	gacacaccgg	tggcctgccc	gggtgagctc	1140
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aacggcatcg	gccagggcac	cgtgaccgtc	agcccgttcg	gcctcgccgt	cgcgaggcc	1440
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ggcgacatcg cgttcgcgac gctgggtggc ggcggcgact cgtcggcacc ggccgtcgcg 1740  
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<210> 9  
<211> 592  
<212> PRT  
<213> Mycobacterium smegmatis

<400> 9

Met	His	Leu	Arg	Pro	Ala	Leu	Thr	Trp	Leu	Leu	Val	Val	Gly	Leu	Phe
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Ile	Ser	Val	Val	Gly	Cys	Ser	Ser	Ser	Pro	Asp	Pro	Ala	Asp	Arg	Phe
			20					25					30		
Ser	Ala	Phe	Ala	Glu	Ala	Leu	Gly	Arg	Lys	Asp	Ala	Ala	Ala	Ala	Ala
		35					40					45			
Ala	Gln	Thr	Ser	Asp	Pro	Ala	Ala	Ala	Glu	Ala	Ala	Ile	Thr	Ala	Met
		50					55					60			
Leu	Ala	Gly	Met	Gly	Asp	Ala	Ala	Asn	Val	Ser	Val	Ala	Ala	Glu	Pro
65					70					75				80	
Glu	Glu	Gly	Asp	Asp	Ala	Gly	Ala	Thr	Leu	Lys	Tyr	Thr	Trp	Thr	Trp
			85						90					95	
Gly	Glu	Gly	Arg	Asp	Phe	Gly	Tyr	Asp	Thr	Thr	Ala	Thr	Ala	Ala	Lys
			100					105					110		
Ser	Gly	Asp	Asp	Trp	Leu	Ile	Thr	Trp	Ser	Pro	Thr	Val	Leu	His	Arg
		115					120					125			
Asp	Leu	Thr	Pro	Asp	Leu	Arg	Phe	Gln	Tyr	Ser	Glu	Asp	Ser	Glu	Leu
		130					135				140				
Gln	Thr	Pro	Val	Leu	Asp	Arg	Thr	Gly	Gln	Pro	Leu	Met	Thr	Trp	Gln
145					150					155				160	
Thr	Val	Gly	Val	Ile	Thr	Val	Glu	Arg	Ala	His	Pro	Glu	Ser	Ala	Ala
			165					170					175		
Pro	Leu	Ala	Ala	Leu	Leu	Ala	Pro	Phe	Asp	Pro	Thr	Thr	Thr	Thr	Glu
			180					185					190		
Ser	Val	Thr	Ala	Gln	Leu	Asn	Ser	Thr	Thr	Asp	Asp	Arg	Val	Thr	Val
			195				200					205			
Met	Lys	Leu	Arg	Glu	Asp	Asp	Leu	Gly	Gln	Val	Arg	Asp	Gln	Leu	Ala
		210					215				220				

Gln Ile Pro Gly Val Thr Val Arg Glu Gln Gly Glu Leu Leu Thr Ala			
225	230	235	240
Asp Arg Gln Leu Ser Ser Pro Ala Ile Ser Gly Leu Asp Glu Leu Trp			
	245	250	255
His Asp Arg Ile Thr Ala Asn Ala Gly Trp Ser Val Tyr Leu Val Asp			
	260	265	270
Ala Asp Gly Ala Pro Ala Gln Gln Leu Thr Ser Thr Pro Pro Lys Asp			
	275	280	285
Thr Gly Pro Val Arg Thr Thr Leu Asp Leu Arg Met Gln Leu Leu Ala			
	290	295	300
Gln Gln Ala Val Ala Lys Glu Thr Arg Pro Ala Val Val Val Ala Ile			
305	310	315	320
Ser Gly Ser Thr Gly Gly Ile Leu Ala Ala Ala Gln Asn Pro Ala Ala			
	325	330	335
Asp Pro Gln Gly Ala Ile Ala Phe Ser Gly Leu Tyr Pro Pro Gly Ser			
	340	345	350
Thr Phe Lys Thr Ile Thr Thr Ala Ala Ala Leu Asp Ala Gly Leu Ala			
	355	360	365
Thr Pro Asp Thr Pro Val Ala Cys Pro Gly Glu Leu Thr Ile Glu Asn			
	370	375	380
Arg Thr Ile Pro Asn Asp Asp Asn Phe Asp Leu Gly Thr Val Pro Leu			
385	390	395	400
Ser Ser Ala Phe Ser His Ser Cys Asn Thr Ser Met Ala Ala Leu Ser			
	405	410	415
Asp Glu Leu Pro Pro Asn Ala Leu Thr Asp Met Ala Lys Asp Phe Gly			
	420	425	430
Ile Gly Val Asp Phe Met Val Pro Gly Leu Thr Thr Val Thr Gly Arg			
	435	440	445
Val Pro Asn Ala Asp Asn Ala Ala Gln Arg Val Glu Asn Gly Ile Gly			
	450	455	460
Gln Gly Thr Val Thr Val Ser Pro Phe Gly Leu Ala Val Ala Glu Ala			
465	470	475	480
Ser Leu Ala His Gly Ser Thr Ile Leu Pro Thr Leu Val Asp Gly Glu			
	485	490	495
Lys Thr Thr Ala Asp Thr Pro Ser Val Pro Leu Pro Pro Asn Ile Thr			
	500	505	510
Asp Ala Leu Arg Ala Met Met Arg Gly Thr Val Thr Glu Gly Thr Ala			
	515	520	525

Thr Ala Leu Ser Asp Ile Pro Asp Leu Gly Gly Lys Thr Gly Thr Ala  
530 535 540

Glu Phe Gly Asp Asn Thr His Ser His Gly Trp Phe Ala Gly Ile Ala  
545 550 555 560

Gly Asp Ile Ala Phe Ala Thr Leu Val Val Gly Gly Asp Ser Ser Ala  
565 570 575

Pro Ala Val Ala Ile Ser Gly Asp Phe Leu Arg Pro Ala Leu Ala Gly  
580 585 590

<210> 10

<211> 592

<212> PRT

<213> Artificial Sequence

<220>

<223> penicillin binding protein

<400> 10

Met His Leu Arg Pro Ala Leu Thr Trp Leu Leu Val Val Gly Leu Phe  
1 5 10 15

Ile Ser Val Val Gly Cys Ser Ser Ser Pro Asp Pro Ala Asp Arg Phe  
20 25 30

Ser Ala Phe Ala Glu Ala Leu Gly Arg Lys Asp Ala Ala Ala Ala Ala  
35 40 45

Ala Gln Thr Ser Asp Pro Ala Ala Ala Glu Ala Ala Ile Thr Ala Met  
50 55 60

Leu Ala Gly Met Gly Asp Ala Ala Asn Val Ser Val Ala Ala Glu Pro  
65 70 75 80

Glu Glu Gly Asp Asp Ala Gly Ala Thr Leu Lys Tyr Thr Trp Thr Trp  
85 90 95

Gly Glu Gly Arg Asp Phe Gly Tyr Asp Thr Thr Ala Thr Ala Ala Lys  
100 105 110

Ser Gly Asp Asp Trp Leu Ile Thr Trp Ser Pro Thr Val Leu His Arg  
115 120 125

Asp Leu Thr Pro Asp Leu Arg Phe Gln Tyr Ser Glu Asp Ser Glu Leu  
130 135 140

Gln Thr Pro Val Leu Asp Arg Thr Gly Gln Pro Leu Met Thr Trp Gln  
145 150 155 160

Thr Val Gly Val Ile Thr Val Glu Arg Ala His Pro Glu Ser Ala Ala  
165 170 175

Pro Leu Ala Ala Leu Leu Ala Pro Phe Asp Pro Thr Thr Thr Thr Glu

180	185	190
Ser Val Thr Ala Gln Leu Asn Ser Thr Thr Asp Asp Arg Val Thr Val		
195	200	205
Met Lys Leu Arg Glu Asp Asp Leu Gly Gln Val Arg Asp Gln Leu Ala		
210	215	220
Gln Ile Pro Gly Val Thr Val Arg Glu Gln Gly Glu Leu Leu Thr Ala		
225	230	235
Asp Arg Gln Leu Ser Ser Pro Ala Ile Ser Gly Leu Asp Glu Leu Trp		
245	250	255
His Asp Arg Ile Thr Ala Asn Ala Gly Trp Ser Val Tyr Leu Val Asp		
260	265	270
Ala Asp Gly Ala Pro Ala Gln Gln Leu Thr Ser Thr Pro Pro Lys Asp		
275	280	285
Thr Gly Pro Val Arg Thr Thr Leu Asp Leu Arg Met Gln Leu Leu Ala		
290	295	300
Gln Gln Ala Val Ala Lys Glu Thr Arg Pro Ala Val Val Val Ala Ile		
305	310	315
Ser Gly Ser Thr Gly Gly Ile Leu Ala Ala Ala Gln Asn Pro Ala Ala		
325	330	335
Asp Pro Gln Gly Ala Ile Ala Phe Ser Gly Leu Tyr Pro Pro Gly Ser		
340	345	350
Thr Phe Lys Thr Ile Thr Thr Ala Ala Ala Leu Asp Ala Gly Leu Ala		
355	360	365
Thr Pro Asp Thr Pro Val Ala Cys Pro Gly Glu Leu Thr Ile Glu Asn		
370	375	380
Arg Thr Ile Pro Asn Asp Asp Asn Phe Asp Leu Gly Thr Val Pro Leu		
385	390	395
Ser Ser Ala Phe Ser His Ser Cys Asn Thr Ser Met Ala Ala Leu Ser		
405	410	415
Asp Glu Leu Pro Pro Asn Ala Leu Thr Asp Met Ala Lys Asp Phe Gly		
420	425	430
Ile Gly Val Asp Phe Met Val Pro Gly Leu Thr Thr Val Thr Gly Arg		
435	440	445
Val Pro Asn Ala Asp Asn Ala Ala Gln Arg Val Glu Asn Gly Ile Gly		
450	455	460
Gln Gly Thr Val Thr Val Ser Pro Phe Gly Leu Ala Val Ala Glu Ala		
465	470	475
Ser Leu Ala His Gly Ser Thr Ile Leu Pro Thr Leu Val Asp Gly Glu		

485	490	495
Lys Thr Thr Ala Asp Thr Pro Ser Val Pro Leu Pro Pro Asn Ile Thr		
500	505	510
Asp Ala Leu Arg Ala Met Met Arg Gly Thr Val Thr Glu Gly Thr Ala		
515	520	525
Thr Ala Leu Ser Asp Ile Pro Asp Leu Gly Gly Lys Thr Gly Thr Ala		
530	535	540
Glu Phe Gly Asp Asn Thr His Ser His Gly Trp Phe Ala Gly Ile Ala		
545	550	555
Gly Asp Ile Ala Phe Ala Thr Leu Val Val Gly Gly Asp Ser Ser Ala		
565	570	575
Pro Ala Val Ala Ile Ser Gly Asp Phe Leu Arg Pro Ala Leu Ala Gly		
580	585	590

<210> 11  
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 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> primer

<400> 11  
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<210> 12  
 <211> 51  
 <212> DNA  
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tcactcatta ggcaccccag gctttacact ttatgcttcc ggctcgtatg ttgtgtggaa 180

ttgtgagcgg ataacaattt cacacaggaa acagctatga ccatgattac gccaaagctat	240
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